martinarchitectural

Inground 200
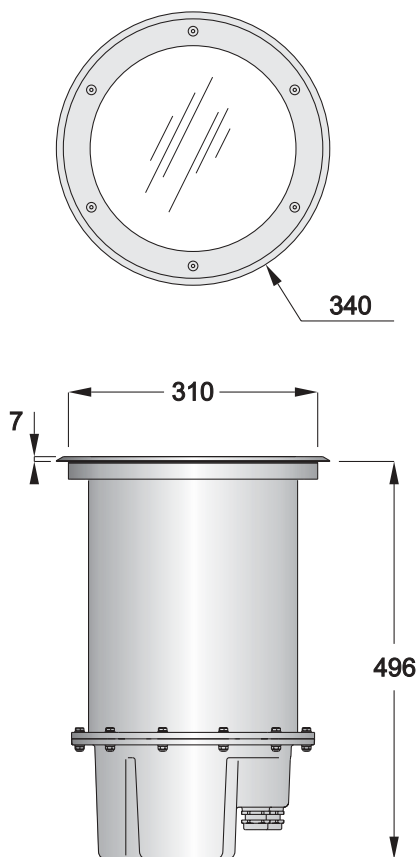
User Manual

6 Color and
Full Spectrum CMY

Dimensions

Measurements are in millimeters

340

7

310

496

Martin

SECTION 1. GETTING STARTED

1. Introduction

Thank you for selecting the Martin Inground 200. This User Manual contains details of how to operate Inground 200 6 Color and Full Spectrum CMY models.

For details of *installing* the Inground 200, including:

• choosing location
• installing and connecting power and data cables

please refer to the Installation Guide shipped with the product. The most recent versions of the Installation Guide and this User Manual are also available in the Support area of the Martin Architectural website at http://www.martin-architectural.com

The Inground 200 6 Color and Full Spectrum CMY models are dynamic 150 watt uplights designed for fixed exterior installation. They feature programmable color-changing, full-range continuous dimming and start/stop times, and can be programmed using a PC with MUM software or programmed and operated using a DMX controller.

An Inground 200 6 Color or Full Spectrum CMY running a pre-programmed show can perform synchronized scene changes with up to 31 other Martin Architectural fixtures of the following types:

• Inground 200
• Exterior 200
• Exterior 600
• FiberSource CMY150
• Imager series
• Alien 02 series
• MiniMAC Maestro

Inground 200 model range

The Inground 200 is available in the following configurations:

Inground 200 Single Color

The Inground 200 Single Color can be operated with or without a color filter and can be manually dimmed, but is not programmable.

Inground 200 6 Color

The Inground 200 6 Color offers programmable color-changing with six colors including white, and 0-100% intensity control. A palette of five primary colors (rich red, golden orange, lemon yellow, spring green and royal blue) is included as standard. Alternative color palettes can be ordered from your Martin Architectural dealer.

Inground 200 Full Spectrum CMY

The Inground 200 Full Spectrum CMY offers programmable seamless full spectrum color-mixing, giving a virtually limitless color palette, and 0-100% intensity control.

Optional beam angles

The following optional lenses are available for all Inground 200 models:

• Medium – 32° one-tenth peak angle
• Wide – 56° one-tenth peak angle
• Very wide – 98° one-tenth peak angle
• Wallwash

Power supply options

All models are available in two configurations to match local power supplies:

• 230V/50Hz
• 210V/60Hz

Included items

Inground 200 6 Color and Full Spectrum CMY models are supplied with the following items:

• Philips CDM-SA/T 150W/942 lamp

- 2 stainless steel cable glands (IP 68) for AC power cable entry (M25 x 1.5mm; Ø13-17mm)
- 2 stainless steel cable glands (IP 68) for control cable entry (M16 x 1.5mm; Ø5-9mm)
- Installation guide
- User manual

2. Safety information

Warning!   *This product is not for household use.*

This product presents risks of lethal or severe injury due to fire, heat, electric shock and lamp explosion.

Read this guide before operating the fixture, follow the safety precautions listed below and observe all warnings in this guide and on the fixture.

If you have questions about how to operate the fixture safely, please contact your Martin Architectural dealer or call the Martin 24-hour service hotline on +45 70 200 201.

Guarding against electric shock

- Isolate the fixture from AC power before removing or installing the lamp, fuses, or any part.
- Always ground (earth) the fixture electrically.
- Use only a source of AC power that complies with local building and electrical codes and has both overload and ground-fault protection.
- Refer all service to a Martin Architectural service technician.

Lamp safety and eye protection

- Never operate the fixture with missing or damaged lenses and/or covers.
- Do not stare directly into the light. Never look at an exposed lamp while it is lit.
- Wear safety glasses during beam adjustment.
- Use only approved lamp types (see *"Source"* on page 69).
- Replace the lamp if it becomes defective or worn out. The average life of the Philips CDM-SA/T 150W/942 lamp supplied with the Inground 200 is 6000 hours. If one of the approved alternative lamp types listed under *"Source"* on page 69 is fitted, see the lamp supplier's documentation.

Guarding against burns and fire

- Allow the fixture to cool for at least 15 minutes after use before opening it for service or adjustment.
- Wear heat-resistant safety gloves during beam adjustment.
- Never attempt to bypass the thermostatic switch or fuses. Always replace defective fuses with ones of the specified type and rating.
- Keep all combustible materials (for example fabric, wood, paper) at least 1 meter (39 inches) away from the fixture. Keep flammable materials well away from the fixture.
- Ensure that litter, dry leaves or other combustible materials cannot accumulate on or near the fixture.
- Prevent vehicles from being parked over or near fixtures – including unlit fixtures that may later be switched on.
- Do not illuminate surfaces within 0.5 meters (20 inches) of the fixture.
- Install the fixture outdoors or in a well ventilated area.
- The exterior of the fixture can become very hot, up to 80° C (176° F) during normal operation. Ensure all local safety regulations and legal requirements are observed, and take appropriate measures to warn or restrict access.
- Do not modify the fixture or install other than genuine Martin parts.
- Never place filters or other materials over the front glass.

Pedestrian safety

- The front glass can be slippery, especially when wet. Ensure that pedestrians are warned and/or kept away from the fixture.
- Use of the anti-skid front glass (p/n 91611198) is strongly recommended for installation in pedestrian traffic areas.

3. General operation

General guidelines

To avoid voltage drops which may result if many lamps strike at the same time, there is a short delay before the lamp strikes after power-on.

For optimum lamp life, turn off lamp power whenever illumination is not required for periods of one hour or more. Fixture power may remain on when not in use.

When the temperature is expected to fall below freezing, leave the fixture powered on when not in use to keep the electronics warm. The lamp, however, may be switched off.

Always allow the lamp to warm up fully for five minutes before turning it off.

Understanding shows and scenes

If you are not familiar with programmable lighting, it will help you follow the rest of this manual if you understand the concept of shows and scenes.

A show, or program, is a complete sequence of lighting effects which can be repeated again and again, if desired. Scenes are individual lighting effects, and are the basic elements in a show.

Scenes consist of a *Fade* period during which lighting fixtures change to the desired effect, and a *Wait* period, during which fixtures continue to display the desired effect.

The example on the right is a lighting show consisting of 3 scenes. These 3 scenes could for example be:

1. 30 seconds fade from blackout to 40 seconds of 100% intensity red light.
2. 30 seconds fade to 30 seconds of 50% intensity blue light.
3. 20 seconds fade to 2 minutes of 80% intensity white light.
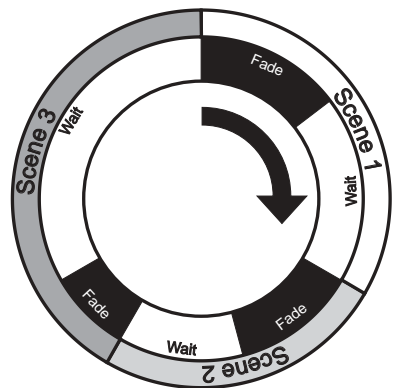
Powering on for the first time

When the Inground 200 is connected to power for the first time, it will start running a factory-set light show to test the fixture. It will continue to run this test show until a new show is programmed into it, or until it receives DMX commands.

6 Color fixture initial test show

The 6 Color fixture is pre-programmed with 7 scenes, to verify that all colors and the dimmer are working correctly.

1. White 100% intensity.
2. Color 1 100% intensity.
3. Color 2 100% intensity.
4. Color 3 100% intensity.
5. Color 4 100% intensity.
6. Color 5 100% intensity.
7. White 0% intensity (no light).

Full Spectrum CMY fixture initial test show

The Full Spectrum CMY fixture is pre-programmed with 5 scenes, to verify that all color-flags and the dimmer are working correctly.

1. White 100% intensity.
2. Cyan 100% intensity.
3. Magenta 100% intensity.
4. Yellow 100% intensity.
5. White 0% intensity (no light).

Control and programming options

Inground 200 6 Color and Full Spectrum CMY models can receive control and programming data:

• via the RJ45 service connector on the lamp module under the front glass and lens
• via fixed-installation 3-wire DMX cable that enters the fixture through the bottom of the housing.

The service connector has priority. This means that data from the fixed DMX link is not accepted while there is input from the RJ45 service connector.

Control and programming methods

The Inground 200 6 Color and Full Spectrum CMY models can be programmed and controlled using one of the methods listed below.

Stand-Alone programming

Using a PC with MUM software or a Martin MP-2 Uploader to program and store shows in individual fixtures:

1. Any number of fixtures can be programmed independently.

2. One fixture can be programmed to run scenes and send scene-change signals to any number of other fixtures via a data link. This feature can be used for synchronized light shows. Fixtures in synchronized light shows can be programmed to run the same scenes or different scenes.

Stand-Alone programming is described in *"Section 2. Stand-Alone operation"* on page 21.

DMX control

Using a DMX recorder or controller to control fixtures via a data link:

1. Up to 32 fixtures on one data link can run synchronized light shows in which each fixture can be controlled independently of the others. If more fixtures are required, more data links can be added using a Martin RS-485 Optosplitter.

2. Any number of fixtures can run light shows in which all fixtures run the same scenes.

DMX control is described in *"Section 3. DMX control"* on page 41.

Initial configuration for use

Before the Inground 200 can be programmed or controlled, certain fixture settings need to be configured. This section describes how to configure these using either MUM software or an MP-2 Uploader.

Multi-Utility Manager (MUM) software

Multi-Utility Manager (MUM) is a PC software application that must be used in combination with a DABS1 hardware interface.

We recommend MUM because it provides an intuitive, easy-to-use, graphic user interface.

MUM only allows you to connect to, and set up, one fixture at a time.
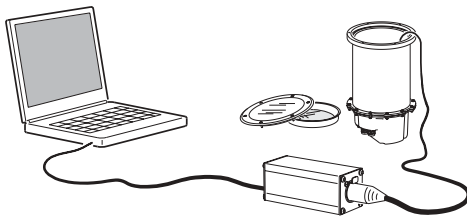
For details of how to use MUM, see *"Defining fixture settings using MUM"* on page 15.

Martin MP-2 Uploader

This hardware uploader can be loaded with the Inground 200's control software and connected to either a data link or a single fixture, as illustrated below. The MP-2 Uploader User Manual contains full details of uploading options and methods.

When working with multiple fixtures, an MP-2 allows you to apply settings globally to multiple fixtures on a data link.

The MP-2 provides a text-based interface and the fixtures do not provide feedback to the uploader. Therefore, the current settings of the fixture can only be "read" by observing the behavior of the fixture.
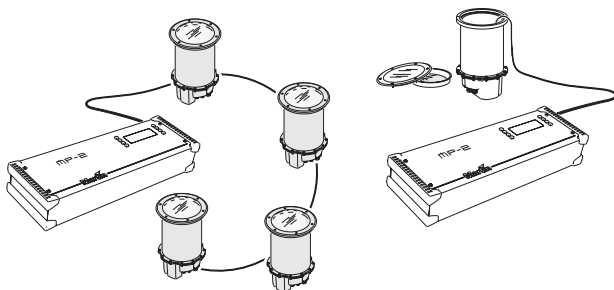
For details of how to use the MP-2, see *"Defining fixture settings using an MP-2"* on page 18.

Defining fixture settings using MUM

Using MUM, you can connect to and set up one fixture at a time. Refer to the *MUM User Manual* (available on the Martin website at http://www.martin.com) for instructions on installing and starting the MUM application.
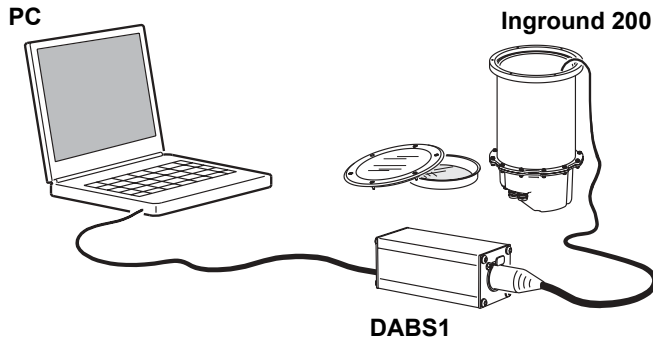
MUM must be used with a DABS1 interface device. A complete package containing MUM, the DABS1, documentation and all cables is available from Martin dealers (P/N 90758090). The package includes an XLR to RJ45 cable to connect the DABS1 to an Inground 200. This cable is also available separately (P/N 11840087).

To get started:

1. Connect a PC to a DABS1 and connect the DABS1 to an Inground 200.
2. Power on the Inground 200 and start the MUM application. The application will automatically detect an Inground 200 if it is powered on and connected. It will also retrieve the current settings on the fixture and display them.

Setting the onboard clock

The Inground 200 has a battery operated 24-hour clock that can start and stop stand-alone operation.

To set the clock:

1. in the main MUM window, click on the **Fixture info** button:

2. Using the two **Fixture time** spin buttons, set the fixture to the current time and date (expressed in the 24-hour clock in hours and minutes, then in DD/MM/YY format). The time will be updated in the fixture in real-time.

Fixture settings

To set the additional fixture settings, click on the **Fixture settings** button:

DMX address

If you are not familiar with the DMX lighting control protocol, it will help if you read through *"DMX Controller operation"* on page 41.

The DMX address (also known as the control address, or start channel) is the first channel used to receive instructions from the DMX controller. Each fixture needs its own DMX address set, and uses this address (and control channels immediately above this address) to receive instructions.

The Inground 200 6 Color model reads the data on its start channel and the next three channels. If the control address is set to 100, the fixture uses channels 100, 101, 102 and 103. Channel 104 can be used as the DMX address for the next fixture.

The Inground 200 Full Spectrum CMY model reads the data on its start channel and the next five channels. If the control address is set to 100, the fixture uses channels 100, 101, 102, 103, 104 and 105. Channel 106 can be used as the DMX address for the next fixture.

If two or more fixtures are set up with the same address, they will receive the same instructions and should behave identically. Setting up identical fixtures with the same address is a good tool for troubleshooting unexpected behavior and an easy way to achieve synchronized action.

To set the DMX address use the **DMX Address** spin button. The fixture address is updated in real time.

DMX Lamp Off

When the **DMX Lamp Off** personality is on (the default setting), lamp power can be turned off from the controller by setting channel 1 to a decimal value from 248 to 255.

DMX Reset

When the **DMX Reset** personality is on (the default setting), the fixture can be reset from the controller by setting channel 1 to a decimal value from 208 to 217.

Auto Lamp On

When the **Auto Lamp On** personality is on, the fixture turns on the lamp within 90 seconds of power on. When set to off (the default setting), a lamp-on command is required to turn on the lamp.

MC-X Lamp Off

By choosing the option **MCX Preset 7 key** from the **MCX Lamp Off** field, you enable button 7 on an MC-X controller to be used to control the lamp off function.

Defining fixture settings using an MP-2

The MP-2 uploader can be loaded with the Inground 200's control software and connected to a fixture or data link. (Please refer to the MP-2 Uploader user manual for details on how to do this).

An MP-2 allows you to apply settings globally to multiple fixtures on a data link.
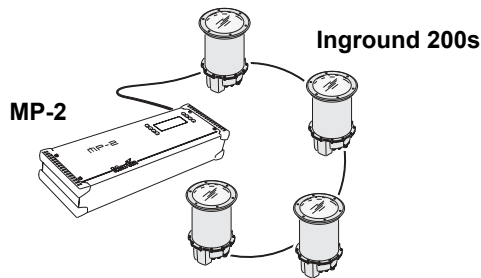
The MP-2 has a text-based interface and does not receive feedback from fixtures. Therefore, the current settings of the fixture can only be "read" by observing the behavior of the fixture.

Single-fixture and all-fixture modes

The MP-2 uploader provides two ways to access fixtures: single-fixture mode and all-fixtures mode. In single-fixture mode, the uploader communicates only with the fixture at a designated address. In all-fixtures mode, the uploader communicates with all fixtures of the same type to which it is connected.

Fixture-specific settings such as the control address should be made in single-fixture mode. If no other fixtures are connected, however, then all-fixtures mode may be used. Global settings are easiest to apply in all-fixtures mode.

DMX address

The DMX address, also known as the control address, or start channel, is the first channel used to receive instructions from an uploader. Each fixture needs its own control address set, and uses this address and subsequent control channels to receive instructions from an uploader or controller.

The Inground 200 uses seven control channels. It reads the data on the start channel and the next six channels. If the control address is set to 100, the fixture uses channels 100, 101, 102, 103, 104, 105, and 106. Channel 107 would be the control address for the next fixture.

If two or more fixtures are set up with the same address, they will receive the same instructions and should behave identically. Setting up identical fixtures with the same address is a good tool for troubleshooting unexpected behavior and an easy way to achieve synchronized action.

Important!   *When setting the address, either use single-fixture mode or isolate all other fixtures from the uploader.*

To set the control address:

1. Prepare an MP-2 or similar upload device as described in the uploader user manual. If you know the address to which the fixture is currently set, (i.e. the address to change *from*), connect the uploader to the data link and use single-fixture mode. Otherwise, use all-fixtures mode and isolate all other fixtures from the uploader. Apply power to the fixture.
2. If using single-fixture mode, scroll to the fixture's current address and press OK (in all-fixtures mode this step is not necessary).
3. Select **Fixture address** from the **Fixture Menu**.
4. Scroll to the desired control address and press OK.
5. Press OK again to confirm and save the setting.

Personality settings

The following settings are available in the uploader's **Personality** menu to modify fixture behavior.

DMX lamp off: When the DMX lamp off personality is on (the default setting), lamp power can be turned off from the controller by setting channel 1 to a decimal value from 248 to 255.

DMX reset: When the DMX Reset personality is on (the default setting), the fixture can be reset from the controller by setting channel 1 to a decimal value from 208 to 217.

Auto lamp on: When the Auto lamp on personality is on (the default setting), the fixture turns on the lamp within 90 seconds of power on. When

set to off, a lamp-on command from a DMX controller or an onboard timer is required to turn on the lamp.

MC-X lamp off: When the MC-X Lamp-off personality is on (the default setting), the lamp can be doused with a command from an MC-X controller.

To set a personality setting:

1. Prepare and connect an MP2 or similar upload device as described in the device's user manual. Apply power to the fixture.
2. Select single fixture mode to change a setting on a single fixture, or all-fixtures mode to make global changes.
3. If using single-fixture mode, enter the fixture's address.
4. Select **Personality** from the fixture menu.
5. Select the desired personality and setting. (See *"MP-2 control menu structure"* on page 63.) Press OK.

Clock

The Inground 200 has a battery operated 24-hour clock that can start and stop stand-alone operation.

To set the clock:

1. Prepare and connect an upload device as described in the MP2 Uploader manual. Apply power to the fixture.
2. Select all-fixtures mode.
3. Select **Adjust -> Real time clock** from the fixture menu.
4. Select **Hour** and scroll to the current hour.
5. Press OK.
6. Select **Minute** and scroll to the current minute.
7. Press OK.
8. Press **Back** to return to the main menu.

SECTION 2. STAND-ALONE OPERATION

4. Stand-alone programming overview

Stand-alone is a mode where the fixture executes color changes at set intervals and speeds, at pre-defined periods during the day. The term *stand-alone* is used to mean that the Inground 200 is not connected to a control device, but is pre-programmed with a series of up to 20 scenes that play continuously in a loop.

'Stand-alone operation' involves:

- a single fixture running independently, or
- multiple fixtures running synchronously.

For multiple fixtures to run synchronously, one 'master' fixture must send trigger signals to the other 'slave' fixtures via a DMX control data link. The slave fixtures must all be programmed individually with shows, but each scene in their shows is started by a trigger signal from the master fixture.

An Inground 200 running a stand-alone show can perform synchronized scene changes with up to 31 other Martin fixtures of the following types on one data link:

- Inground 200
- Exterior 200
- Exterior 600
- FiberSource CMY150
- Imager series
- Alien 02 series
- MiniMAC Maestro

More fixtures can be added to an installation by using one or more Martin RS-485 Opto-Splitters. This small DMX amplifier will allow up to 4 additional branches to be added to a data link, with 32 fixtures possible on each branch. Full product details are available in the Products area of the Martin Architectural website at http://www.martin-architectural.com

About scene timing

Each scene in a show has two parts:

1. a dynamic part - the *fade* - during which effects move to the scene's programmed positions
2. a static part - the *wait* - where effects do not change.

The duration of the fade and wait is programmed individually for each scene. The fade and wait times can be between 0 seconds - 18 hours. The total time it takes a scene to execute is the fade time plus the wait time.

When operating multiple fixtures synchronously, the wait time is determined by the master fixture.

Slave fixtures fade at their own rate and then remain in the "wait" state until they receive a "start scene" or "start show" trigger from the master.

When programming in synchronous triggering situations, you can make life much easier if you make sure that:

1. Every fixture has the same number of scenes.
2. Respective scene times are a few seconds longer on the master fixture than on the slave fixtures.

The rules used in the master/slave algorithm are detailed in *"Synchronous triggering during Stand-Alone operation"* on page 38.
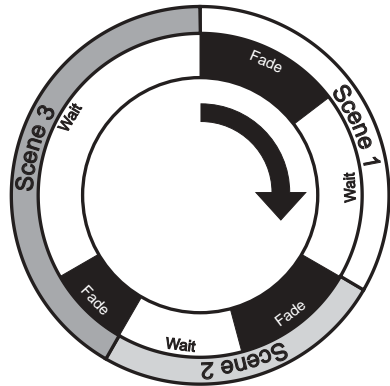
Synchronizing scene changes for multiple Inground 200s

If you are running multiple Inground 200s on a data link, it is possible to synchronize scene changes.

Note: Each individual fixture must be programmed with a show. The only commands that are transmitted by the master fixture are scene change commands. No data about the look of the scene is transmitted between fixtures.

Programming methods

The Inground 200 provides two stand-alone programming methods; using:

1. the Martin MUM application on a personal computer (recommended because it provides an intuitive, easy-to-use, graphic user interface), or

2. an MP-2 Upload device. See *"Programming using an MP-2 Uploader"* on page 30 for further information.

If you are programming a group of fixtures to perform the same scenes with synchronized triggering then we recommend that you either:

1. Use MUM to program fixture settings and a show on a single fixture, download and save the fixture memory to a file on your PC using MUM's **Files** menu, and then upload this file to each subsequent fixture that you connect to, or

2. Use an MP-2 Uploader to program the same show on all the fixtures on the network simultaneously (you can then assign their individual DMX address afterwards).

5. Programming from a PC using MUM

The programming of scenes, and setting up of master/slave relationships, can be performed from a personal computer running the MUM application. The PC must be connected to a fixture via a DABS1 adaptor. The PC is used to program the stand-alone settings for that fixture, and then removed. When this fixture is subsequently switched on, it can automatically run the scenes in its show in a loop for two periods in each 24 hour period.

PC   **Inground 200**
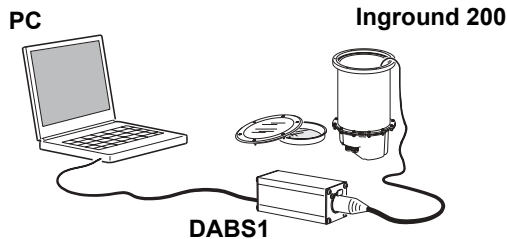
DABS1

If you are not familiar with the use of MUM, it is recommended that you familiarize yourself with it by reading the *MUM user manual*.

Getting started with MUM

To get started:

1. Connect a DABS1 adaptor to your PC and an Inground 200 using the cables supplied in the MUM/DABS1 package. Replacement cables are available from your Martin dealer.

2. Power on the Inground 200 and start the MUM application. The application will automatically detect an Inground 200 if it is powered-on and connected to your computer via a DABS1 adaptor. It will also retrieve the current settings on the fixture and display them.

Stand-Alone Settings

The fixture needs to be configured to know if and when to activate a stand-alone show:

Click **Stand-alone settings** to display the following window.

The following options are available:

Stand-alone operation	Enables or disables stand-alone operation.

Synchronized	Specifies if the fixture operates as a:

- **Single Fixture** (runs independently of any other fixtures)
- **Master** (triggers other fixtures) or
- **Synchronized** (slave fixture, receives trigger signals from a master fixture).

Note*:* No more than one fixture may operate as master. Any fixture on the DMX control link, however, regardless of its position, may be the master. All other fixtures must be set as slave fixtures by setting them to **Synchronized**.

Stand-alone timer settings	Enables timer 1 only, timer 2 only, or both timers (see *"Automatically triggering stand-alone operation"* on page 34)

Synchronizing shows on multiple fixtures

To synchronize scene changes, you need to set up one 'master' fixture to trigger show starts and scene changes in the other 'slave' fixtures. Each slave fixture needs to have its own show programmed. The master fixture triggers the slave fixtures' show starts and scene changes in a cycle in time with its own show.

Each slave fixture will run its programmed show in a loop, changing scene when it receives a trigger from the master fixture that tells it to go to a scene number. When the master fixture finishes its own show, it sends a 'go to scene 1' trigger that causes the slave fixtures to start their shows again from scene 1.

Note: Each individual fixture must be programmed with its own show – the master fixture only sends signals specifying the current scene number. No data about the appearance of the scene is transmitted between fixtures.

Setting stand-alone operation with the onboard clock

Stand-alone operation can be set for one or two periods during a 24 hour period, using the built-in timers.

Note: If you are using a master and slave configuration, all fixture timers must be set to switch fixtures on and off at the same times.

1. First set the correct time. See *"Setting the onboard clock"* on page 15.

2. Set **Enable Timers** to one or two timers depending on whether you want one or two periods of operation in each 24 hour period.
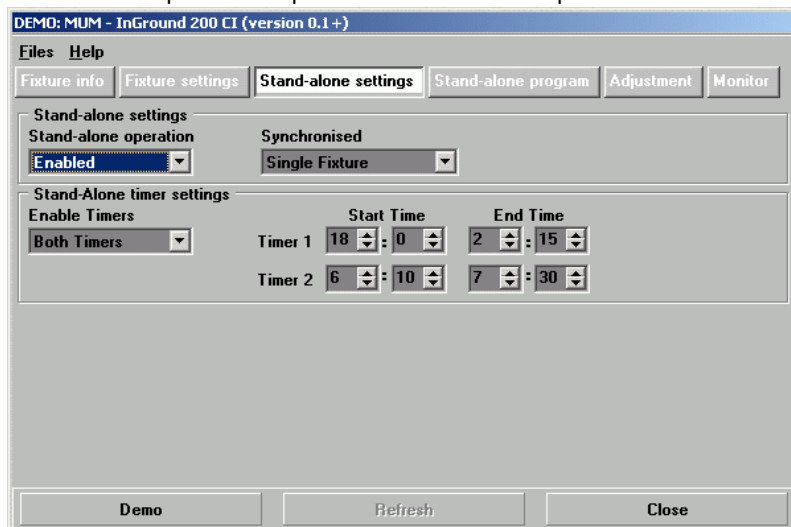
3. Then set the desired **Start Time** and **End Time** for each timer you have enabled.
4. Select **Enabled** in the **Stand-alone operation** drop-down menu.
5. Remember to select **Single Fixture**, **Master** or **Synchronized** in the **Synchronized** drop-down menu

Programming effects in scenes

The programming of light effects is performed using the **Stand-alone program** controls. There are two different sets of options available, depending on whether you are programming a 6 Color or Full Spectrum CMY model. If you have a 6 Color model, go to *"Inground 200 6 Color stand-alone options"* on page 27. If you have a Full Spectrum CMY model, go to *"Inground 200 Full Spectrum CMY stand-alone options"* on page 28.

Inground 200 6 Color stand-alone options

Click on the **Stand-alone program** button to open the programming window:
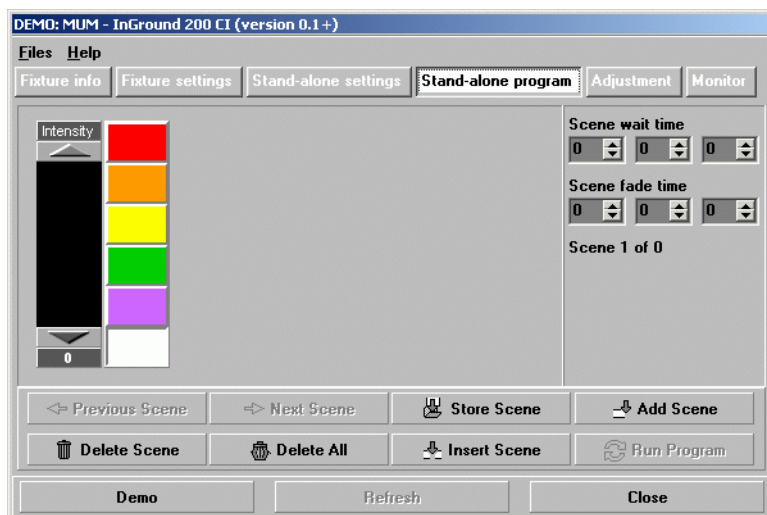
The following options are available:

Intensity	Sets dimmer level.
6 color boxes	Selects color.
Scene fade time	The fade time, which can be between 0 seconds to 18 hours, is the time it takes to change from one color to another.
Scene wait time	This is the duration a color is applied. A wait time can be between 0 seconds and 18 hours. If wait times are set to 0 seconds, colors will fade continuously, giving constantly changing scenes.

Inground 200 Full Spectrum CMY stand-alone options

Click on the **Stand-alone program** button to open the programming window:
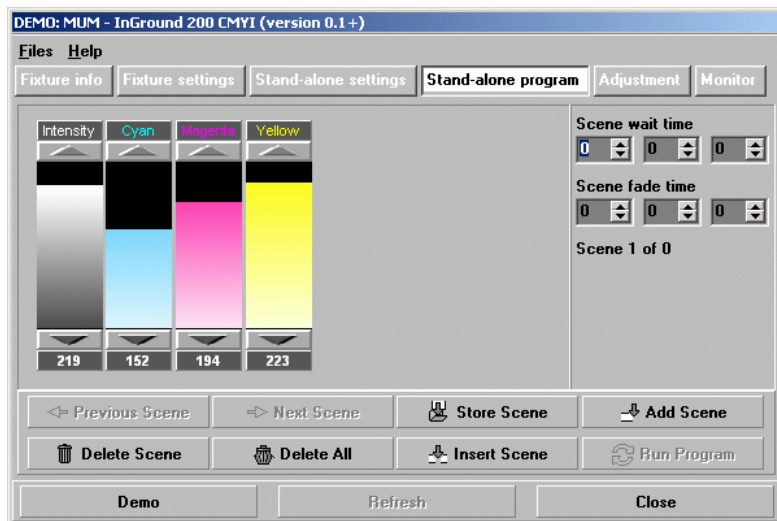
The following options are available:

Intensity	Sets dimmer level.
Cyan Magenta Yellow	Selects color by CMY levels.
Scene fade time	The fade time, which can be between 0 seconds to 18 hours, is the time it takes to change from one color to another.
Scene wait time	This is the duration a color is applied. A wait time can be between 0 seconds and 18 hours. If wait times are set to 0 seconds, colors will change continuously.

Master/slave fade and wait times

When operating multiple fixtures in synchronized-triggering mode, slave fixtures fade and wait according to the programmed fade and wait times for the scene they are running. Once a slave fixture's programmed wait time is over, the slave fixture remains in wait mode until it receives a trigger from the master fixture telling it to go to another scene. If the slave fixture's wait time is not over, it will not accept 'go to scene number XX' commands from the master fixture.

Therefore, when programming a master fixture, keep in mind that its total scene times should be equal to or longer than the fade times of the other fixtures. You will get unpredictable results if, for example, a scene is programmed in the master to last 10 seconds and in other fixtures to fade for 15 seconds (if necessary, see *"Synchronous triggering during Stand-Alone operation"* on page 38 for a more detailed explanation).

Scene management

Once you have specified a mix of effects, you can store the scene using the buttons available in the main MUM window:

Store scene	Save settings in the current scene.
Add scene	Save settings in a new scene at the end of the sequence.
Insert scene	Save settings in a new scene before the current scene, which moves up a number. *Tip: Think of the Add and Insert commands as Save commands, to be used as the last step after programming all effects.*
Delete scene	Remove the current scene from memory. Scenes above the deleted scene move down a number.
Next scene	Step to the next scene.
Previous scene	Step to the previous scene.
Delete all	Remove all scenes from the fixture memory.
Run program	Run the scenes in the current programmed show.

When the show is run, scenes execute in a continuous, ascending loop.

Note: If a slave fixture has:

• Fewer scenes than the master fixture, it will run these in a cycle continuously until the master fixture signals that the show should start from the beginning again.

• More scenes than the master fixture, then the additional scenes will never run, because the show will reset to the first scene when the master starts its show from the beginning.

Programming the same stand-alone show on multiple fixtures

Although you can only connect to and program a single fixture at a time using the MUM application, you can use it to "copy" settings and shows from one fixture to another. To do this, program a single fixture, then use the

commands in MUM's **Files** menu to download and save the fixture settings to a file on your PC. You can then upload the fixture settings and stand-alone show to each subsequent fixture that you connect to. This short-cut is useful if you have a group of fixtures that will run the same stand-alone show. If you copy all settings using this method, remember to set one fixture to master and the rest to synchronized.

6. Programming using an MP-2 Uploader

The programming of scenes, and setting up of master/slave relationships, can be performed using an MP-2 Uploader. The uploader is connected to the fixture, used to program the stand-alone settings for that fixture (or all the fixtures connected to that fixture by data link), and then removed. When you power fixtures on, they can then automatically run their programmed scenes at the times you specify.

To summarize, you can use the MP-2 Uploader to program:

- Individual fixtures, one at a time.
- The same show in multiple fixtures that are linked with data cables.
- Individual shows in multiple fixtures that are linked with data cables.

If you are not familiar with the use of the MP-2, it is recommended that you familiarize yourself with it using the MP-2 Uploader manual.

You can find an overview of the functions and commands available in the MP-2 in *"MP-2 control menu structure"* on page 63.

Getting started

An uploader can be connected either:

- via the DMX link
- via the RJ45 service connector socket under the front glass and lens (see *"Front glass and lens: removal and refitting"* on page 49). To connect an

MP-2 to the service connector you will need a 3-pin male XLR to RJ45 cable (available from your Martin dealer: P/N 11840087).
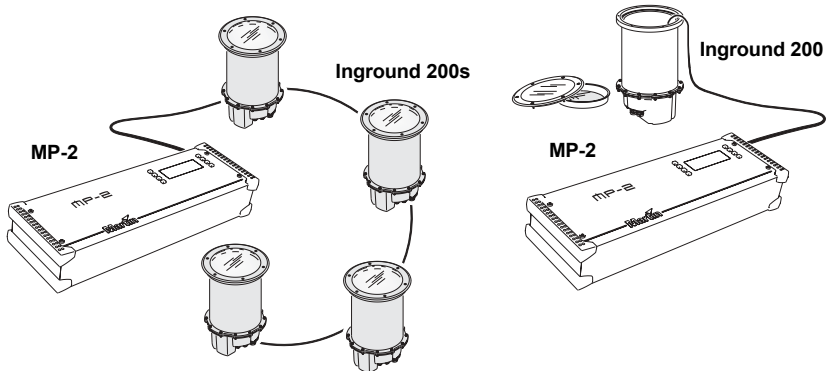
1. Plug either the fixture's or the data link's, data-input cable into the 3-pin female XLR "DMX/RS-485 OUT" socket on the MP-2.
2. Apply power to the fixture and the MP-2.
3. Select **Read Memory Card** from the MP-2 menu.
4. Select **NEG VX.X.X**. (Note that **X.X.X** is the number that corresponds to the firmware version that is loaded in the fixture.
5. Select **Fixture menu**. Then use the keys on the uploader to navigate and select the desired menu item. For further guidance see the following sections.

Selecting fixtures to program

Before you select a fixture to program, its control address must have been set. If you have not yet done so, follow the instructions described in *"DMX address"* on page 19.

You have the option of programing all the Inground 200s on a data link, or an individual Inground 200. Fixture-specific settings such as the control address should be made in single-fixture mode. If no other fixtures are connected, however, then all-fixtures mode may be used. Global settings are easiest in all-fixtures mode. For example, it can be a good idea to program the time into all fixtures simultaneously, while scenes can be programmed into fixtures individually.

Note: It is important that all the fixtures have the same software version, or the results will be unpredictable. For more information see *"Firmware updates"* on page 59.

Selecting a single fixture

To program a single fixture:

1. Select **Single address** from the Fixture menu.
2. Select a start address that corresponds to the fixture that you want to program using the arrows.

    As you scroll through the start addresses, watch for a reaction from the fixture you want to program. Make sure you select the start address of this fixture, i.e. the lowest DMX channel the fixture uses, and not one of the fixture's other DMX channels.

3. Select **OK**.

Selecting all fixtures on a data link

To program all fixtures on the data link simultaneously, select **All addresses** from the Fixture menu.

Enabling or disabling stand-alone mode

To:

• Disable stand-alone mode, select **Stand alone**, then **Enable SA**, and then **Off**.
• Enable stand-alone mode, select **Stand alone**, then **Enable SA**, and then **On**.

When stand-alone mode is enabled, fixtures enter stand-alone mode each time power is applied. Stand-alone mode can be disabled temporarily by:

• Turning the fixture off.
• Connecting a controller and sending control signals.

Synchronizing scene changes for multiple Inground 200s

If you are running multiple Inground 200s on a data link, it is possible to synchronize scene changes. Read this section if this applies in your case.

To synchronize scene changes, you need to set up one 'master' fixture to trigger show starts and scene changes in the other 'slave' fixtures. Each slave fixture needs to have its own show programmed. The master fixture

triggers the slave fixtures' show starts and scene changes in a cycle in time with its own show.

Each slave fixture will run its programmed show in a loop, changing scene when it receives a trigger from the master fixture that tells it to go to a scene number. When the master fixture finishes its own show, it sends a 'go to scene 1' trigger that causes the slave fixtures to start their shows again from scene 1.

Note: Each individual fixture must be programmed with its own show – the master fixture only sends signals specifying the current scene number. No data about the appearance of the scene is transmitted between fixtures.

Setting synchronized triggering options

1. Scroll to **Stand Alone** in the top level of the menus on the control panel and press [enter].
2. Scroll to **SA Execution** and press [enter].
3. Select:

Single fixture	If the fixture will operate in isolation (with no synchronous triggering). This is the factory default setting.
Master	If the fixture will send scene triggering signals to the other Inground 200s on the data link.
Synchronized	If the fixture should operate in slave mode and "listen" for scene trigger signals on the data link.

4. Press [enter].

Defining a master fixture

No more than one fixture may be the master. Any fixture on the link, however, regardless of its position, may be the master.

1. From the **Stand alone** menu, select **SA Execution**.
2. Select **Master**. This designates the fixture as the master fixture and causes it to transmit synchronization signals to the slave fixtures when it runs its show.

Defining slave fixtures

All other fixtures must be set as slave fixtures:

1. From the **Stand alone** menu, select **SA Execution**.
2. Select **Synchronized**. This designates the fixture as a slave fixture which will respond to synchronization signals received from the master fixture.

Automatically triggering stand-alone operation

Stand-alone operation can be set for one or two periods during a 24 hour period using the built-in clock.

Setting a timer trigger

First set the correct time. See *"Clock"* on page 20.

You can set timer operation for a single period, or for two periods, for example, one period in the morning, and one period in the evening. To set the timer for a single period:

1. Select **Stand alone** from the Fixture menu.
2. Select **Timer**, then **Timer1**.
3. Select **Start**, then **Hour**. Use the arrow keys to specify the start hour. Select **OK**.
4. Select **Minute**. Use the arrow keys to specify the start minute. Select **OK**.
5. Select **Back**.
6. Select **Stop**, then **Hour**. Use the arrow keys to specify the stop hour. Select **OK**.
7. Select **Minute**. Use the arrow keys to specify the stop minute. Select **OK**.
8. Select **Back**.
9. Select **Enable** and select the timer you want to activate (in this case, Timer 1).

Programming effects in scenes

The programming of effects is performed using the stand alone Program menu options, such as:

Intensity	Dimmer level.
Cyan **Magenta** **Yellow**	Color (Full Spectrum CMY models only, has no effect in 6 Color models).
Color **wheel**	Color (6 Color models only, has no effect in Full Spectrum CMY models).

Fade time	The fade time is the time it takes to change from one color to another. A fade time can be between 0 seconds and 18 hours.
Wait time	This is the duration a color is applied. A wait time can be between 0 seconds and 18 hours.

Master/slave fade and wait times

When operating multiple fixtures in synchronized-triggering mode, slave fixtures fade and wait according to the programmed fade and wait times for the scene they are running. Once a slave fixture's programmed wait time is over, the slave fixture remains in wait mode until it receives a trigger from the master fixture telling it to go to another scene. If the slave fixture's wait time is not over, it will not accept 'go to scene number XX' commands from the master fixture.

Therefore, when programming a master fixture, keep in mind that its total scene times should be equal to or longer than the fade times of the other fixtures. You will get unpredictable results if, for example, a scene is programmed in the master to last 10 seconds and in other fixtures to fade for 15 seconds (if necessary, see *"Synchronous triggering during Stand-Alone operation"* on page 38 for a more detailed explanation).

Scene management

Once you have specified a mix of effects, you can store the scene using the options available under the Program menu:

Store scene	Save settings in the current scene.
Add scene	Save settings in a new scene at the end of the sequence.
Insert scene	Save settings in a new scene before the current scene, which moves up a number. *Tip: Think of the Add and Insert commands as Save commands, to be used as the last step after programming all effects.*
Delete scene	Remove the current scene from memory. Scenes above the deleted scene move down a number.
Next scene	Step to the next scene.
Previous scene	Step to the previous scene.
Clear scenes	Remove all scenes from the fixture memory.
Run program	Run the scenes in the current programmed show.

The only indication of what the current scene is comes from the behavior of the fixture.

When the programmed show is run, scenes execute in a continuous, ascending loop.

If a slave fixture has:

• Fewer scenes than the master fixture, it will run these in a cycle continuously, until the master fixture signals that the show should start from the beginning again.
• More scenes than the master fixture, then the additional scenes will never run, because the show will reset to the first scene when the master starts its show from the beginning.

Disconnecting the MP-2 Uploader

When all the settings have been made, disconnect the data input cable from the MP-2.

7. Stand-Alone show playback

Starting show playback automatically at fixture power-on

Execution of programmed scenes in a loop will start automatically when the fixture is powered-on if stand-alone operation is enabled and the automatic lamp-on function is enabled.

To check or define this function:

• If you are using MUM on a PC, see *"Stand-Alone Settings"* on page 24 and *"Auto Lamp On"* on page 17.
• If you are using an MP-2 uploader, see *"Enabling or disabling stand-alone mode"* on page 32 and "*Auto Lamp On"* under *"Personality settings"* on page 19.

Scene execution using the optional MC-X

The MC-X is an optional remote control module that is available from Martin. Once the remote controller is connected, 7 scenes can be conveniently called up on the MC-X's buttons.

Enabling MC-X control

Using an MP-2

For each fixture:

1. Disable stand-alone operation on each fixture: select **Stand alone / Enable SA / OFF** and press [enter]. Press [menu] to exit the **Stand alone** menu.
2. Using the **Personality / MC-X lamp off** menu it is possible to set button 7 on the MC-X to control the lamp off function. See *"MP-2 control menu structure"* on page 63.

Using MUM

For each fixture:

1. Disable stand-alone operation. See *"Stand-Alone Settings"* on page 24, under the chapter *"Programming from a PC using MUM"*.
2. Enable lamp-on from the MC-X. See *"MC-X Lamp Off"* on page 18 in the section *"Defining fixture settings using MUM"*.

Connecting and using the MC-X Controller

1. Connect the MC-X controller to the Inground 200's data network via an XLR-to-RJ-45 adaptor. If multiple Inground 200s are connected, plug the controller into the first fixture in the link.
2. To trigger scenes 00-06, press the numbered preset buttons 1 - 7 on the MC-X.
3. To have each fixture run its own routine, press [Auto].

DMX controller override during stand-alone show playback

If an Inground 200 is connected to a DMX controller and receives DMX signals during show playback, the Stand-Alone show will stop running and

the fixture will respond to the DMX controller. DMX signals always have priority over the running of a Stand-Alone show.

8. Synchronous triggering during Stand-Alone operation

Note: ***This chapter details the rules that are used in Stand-Alone synchronous triggering. It is not necessary to read this chapter unless you require help with problem diagnosis or unless you otherwise need a detailed understanding of the algorithm used for synchronous triggering.***

The rules are as follows:

1. Every fixture can have up to 20 on-board scenes with individual fade and wait times.
2. Scenes are numbered from 0 to 19.
3. A scene contains a fade-section, followed by a wait-section.
4. When running "synchronous triggering" one master Inground 200 issues commands to the other slave Inground 200s to "go to scene *xx*", where *xx* is the scene number that the master will execute next.
5. If a slave has fewer scenes than the master, it will derive which scene to go to by dividing the number of the scene it has been commanded to go to (scene 5, for example) by the total number of scenes that the slave fixture has (4, for example) in whole numbers (no decimal places). In this example 5 divided by 4 results in 1, with 1 remainder. This remainder will be the number of the scene that the slave fixture starts - scene 1. Generally though, when a slave fixture reaches its own last scene before the master fixture, a "go to scene *xx*" message will result in the first scene being played.

6. If a slave has more scenes than the master calls, the last scenes in the slave will never be executed, as is the case with scene S4 in the following example.

F=fade, W=wait   Timeline =>

Programmed in Master	M0		M1		M2		M3	
	F	W	F	W	F	W	F	W

Programmed in Slave	S0		S1		S2	S3		S4	
	F	W	F	W	F	W	F	W	F	W

Result	M0		M1		M2		M3	
	F	W	F	W	F	W	F	W
	S0		S1		S2		S3	
	F	W	F	W	F	W	--	--	F	W

7. A slave fixture will not listen for the next message from the master fixture before it has finished its current scene. This may result in a slave fixture skipping a scene if the slave has a longer scene time than the master. Note that in the following example the scenes in the slave fixture run out of their programmed sequence because scenes 0 and 2 on the slave are longer than the corresponding scenes on the master.

M=master, S=slave
F=fade, W=wait   **Time >**

Programmed	M0		M1		M2	
Master	F	W	F	W	F	W
	S0		S1	S2		
Slave	F	W	F	W	F	W

Result	M0		M1		M2		M0		M1	
Master	F	W	F	W	F	W	F	W	F	W
	S0				S2				S1	
Slave	F	W			F	W	..	..	F	W	..	..

SECTION 3. DMX CONTROL

9. DMX Controller operation

DMX512 is a USITT standard protocol used to send instructions from a DMX controller to lighting fixtures on a data link. A total of 512 control channels are available. Inground 200 6 Color models use four DMX control channels and Inground 200 Full Spectrum CMY models use six DMX control channels.

The Inground 200 may be programmed and operated with any lighting controller that is compatible with the USITT DMX standard. This section describes how to operate the fixture with a controller. For use with the Martin MC-X controller, please see *"Scene execution using the optional MC-X"* on page 37. See the DMX protocol starting on page 67 for specific control values.
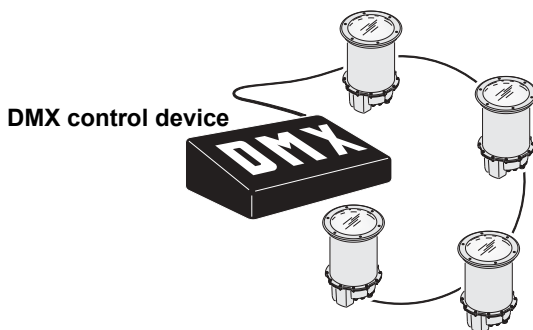
DMX control device

Important: ***If an Inground 200 receives DMX signals during show playback, the stand-alone show will stop running and the fixture will respond to DMX control. DMX signals always have priority over stand-alone operation.***

Lamp control

The lamp can be turned on and off from the controller using the lamp-on and lamp-off commands on channel 1. If the DMX Lamp-off personality is off, the lamp cannot be turned off using DMX.

To have the lamp strike automatically at power-up, set the Automatic Lamp-on personality to on (see page 19). Striking many lamps simultaneously can

cause voltage drops, so Inground 200 lamps strike after a short random delay at power-up.

Note: After being turned off, the lamp must cool for at least 8 minutes before it can be turned back on.

Effects

The mechanical effects reset to their home positions when the fixture is powered on. Effects can also be reset from the controller on channel 1. If the DMX Reset personality is off, the fixture cannot be reset using DMX.

Dimmer

The mechanical dimmer provides smooth, high resolution, full-range dimming on channel 2.

CMY subtractive color mixing

The CMY color mixing system is based on cyan, magenta, and yellow color filters. A continuous range of colors may be achieved by varying the amount of each filter from 0 to 100% on channels 3, 4, and 5.

Note: Mixing 3 colors results in a loss of light - *the light is blacked out when all 3 colors are fully applied.* For maximum brightness, mix only 2 colors at a time.

If you have other fixtures rigged in the same installation as Inground 200s, refer to *"Color matching with other fixtures"* on page 45.

Effect speed

The speed at which effects fade, that is, move from one position to another, can be controlled in two ways known as tracking control and vector control. You may switch between tracking and vector control, but you cannot use both at the same time.

Tracking control is enabled by setting the speed channel (channel 4 on 6 Color models or channel 6 on Full Spectrum CMY models) to a decimal value from 0 to 2. Fades are then programmed using the controller's cross-faders. The Inground 200 has a digital filter algorithm that averages several updates to ensure smooth movement.

Vector control provides a way to program fades on controllers without cross-faders and may provide smoother fades than tracking control with some controllers, particularly on very slow fades. A vector speed is

programmed by setting the speed channel to a decimal value from 3 (fastest) to 245 (slowest). The speed setting applies to dimmer and color fades. When using vector control, the controller cross-fade time, if available, must be 0.

DMX Controller operation

SECTION 4. OPTICS

10. Color matching with other fixtures

If you are running Inground 200 Full Spectrum CMY fixtures together with other Martin Architectural fixtures that use different lamps with different color temperatures, etc., colors will not match exactly when the same CMY values are used on the different fixtures.

This applies to an Exterior 600 fitted with an MSD 575 lamp, for example. Generally speaking, the:

• Higher color temperature MSD lamp used in the Exterior 600 will give deeper colors in the cold colors of the spectrum.

• Lower color temperature CDM lamp used in the Inground 200 will give deeper colors in the warm colors of the spectrum.

The following table gives some approximate values for color matching:

Color	Exterior 600 (with MSD 575 lamp)	Inground 200 (with CDM lamp)
White	Magenta 25 Yellow 44	Open
White	Open	Cyan 74
Yellow	Yellow 241 Magenta 16	Full yellow
Magenta	Magenta 100 Yellow 68	Full magenta
Cyan	Full cyan Magenta 25 Yellow 44	Full cyan
Red	Full magenta Full yellow	Magenta 215 Full yellow
Green	Cyan 241 Yellow 241	Full cyan Full yellow
Blue	Full cyan Full magenta	Cyan 255 Magenta 191

Color matching with other fixtures

Section 5. Service and Troubleshooting

11. Service procedures

This section describes service procedures that can be performed by the user. Refer all service not described here to a qualified Martin Architectural technician.

Warning! ***Isolate the fixture from power and allow to cool for at least 15 minutes before removing any cover.***

Trim ring

Front glass with seal

Lens

Beam adjustment ring

Lamp module

Housing

Connections compartment
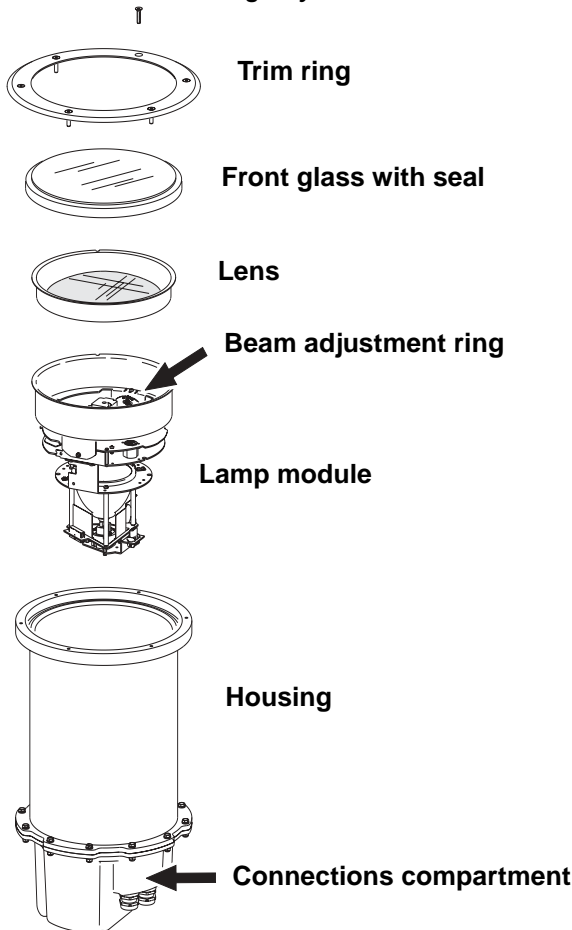
Cleaning

Wash the front glass with a soft brush or sponge and a mild, non-abrasive car washing detergent. Wipe off traces of detergent with a sponge or brush soaked in clean water.

Do not use a hose or high-pressure spray equipment on the fixture. The Inground 200 is water-resistant, but is not designed for submerged operation. Excessive use of water may flood the installation sleeve.

Seals

To maintain the fixture's resistance to dust and moisture, it is important that you replace seals and covers carefully after removal.

The PCB/power compartment cover and cable connection compartment cover Allen screws must first be screwed in until they are finger-tight, and then given an extra 3/4 to one full turn. This will ensure that seals are compressed by about one-third. When fitting the front glass trim ring, cross-tighten the screws gradually to approximately 3 Nm/2.2 ft-lbs.

Warning!   ***Do not use silicone or any other kind of sealant on the front glass seal, front glass, housing or trim ring. Doing so will invalidate the product warranty.***

The silicone seals should maintain their sealing ability for the life of the fixture. However, when servicing the fixture, note the condition of the seals and replace any seal that is cracked, torn, brittle, or inflexible. Replacement seals may be ordered as follows:

```
Front glass seal ..................................................... P/N 20600441
Connection/power compartment seal .................. P/N 20600450
```

Cable glands

The Inground 200 is supplied with four stainless steel IP68 cable glands:

- 2 x AC power cable glands, M25 x 1.5, that will accept cable from 13 to 17mm (0.51 to 0.67 in.) diameter.
- 2 x control cable glands, M16 x 1.5, that will accept cable from 5 to 9mm (0.2 to 0.35 in.) diameter.

Cable glands must be replaced if the power or data cable is replaced with a cable of a different diameter.

Replacement glands, available from electrical suppliers, must have the following characteristics.

Temperature range: .... -20° to 70° C or better
Ingress protection rating: IP68
Power cable gland thread size:.................................... M25 x 1.5
Data cable gland thread size: ....M16 x 1.5
Minimum entry thread length: .... 8 mm

12. Component removal & reinstallation

Tasks such as beam adjustment, lamp replacement and cable connection require the removal and refitting of certain components. This section contains instructions for these procedures.

Front glass and lens: removal and refitting

You will need a 4mm Allen key for this task.

Removing the front glass and lens

1. Isolate the Inground 200 from AC power and allow to cool for at least 15 minutes.

2. Brush sand, dirt, etc. away and clean the Inground 200 and surrounding area to ensure that dirt does not fall into the fixture.

3. Remove the six countersunk 4mm Allen screws and lift the trim ring off the fixture
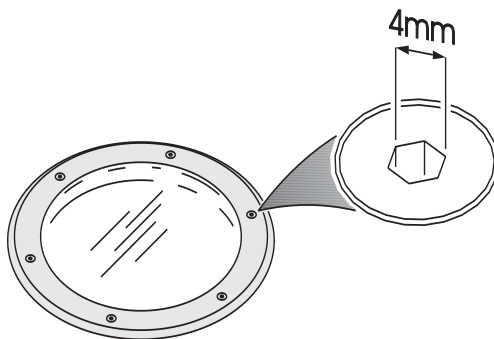
4. Taking care to avoid damaging the seal, lift off the front glass and its seal.

5. Lift the lens out of the housing.

Refitting the lens and front glass

Important!   *Any damaged seals or screws must be replaced with new items.*

The front glass seal, its seating surface in the housing, the front glass and the trim ring must all be perfectly clean and dry to maintain a waterproof seal.

Inspect the front glass seal for signs of damage or deterioration before refitting. Replacement front glasses and seals are available from Martin Architectural dealers (front glass: P/N 41700007, front glass seal: P/N 20600441).

Inspect the six countersunk Allen screws from the trim ring before reuse. Threads must be clean and undamaged. Two spare screws are supplied with the fixture. Replacement screws are available from Martin Architectural dealers (P/N: 08111314)

Warning!   *Do not use silicone or any other kind of sealant on the front glass seal, front glass, housing or trim ring. Doing so will invalidate the product warranty.*

1. Refit the lens by lowering it into the housing.

2. Place the front glass with its seal in the top of the housing.

3. Place the trim ring over the front glass.

4. To make future service easier, apply a small amount of copper-based or silicone grease to the threads of the trim ring screws before insertion.

5. See illustration below. Gradually cross-tighten the trim ring screws in the sequence illustrated to approximately 3 Nm/2.2 ft-lbs torque.

Important! ***Cross-tighten gradually. Do not exceed the maximum torque of 3 Nm/2.2 ft-lbs. by more than 20%, or you may distort the trim ring and damage the seal. This will impair the Inground 200's waterproof properties and invalidate the product warranty.***
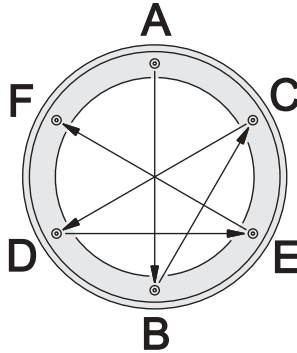
Lamp module: removal and refitting

You will need a 4mm Allen key for this task.

Removing the lamp module

1. Isolate the Inground 200 from AC power and allow to cool for at least 15 minutes.

2. Remove the front glass with its seal and lens (see *"Removing the front glass and lens"* on page 49).

3. Do not loosen the beam adjustment screws and avoid disturbing the beam adjustment settings, or the beam will have to be readjusted. Holding the lamp module by the beam adjustment ring, gently lift the whole module upwards until it is clear of the housing. Note the positions of the lamp module wiring connectors, then disconnect them and lift the lamp module out of the housing.

4. If the lamp is to be replaced, see *"Lamp replacement"* on page 52.

Refitting the lamp module

1. Reconnect the lamp module wiring connectors.

2. Note the position of the screw in the lamp module seating in the housing. Lower the lamp module into the housing, rotating it if necessary so that

the notch in the top of the lamp module engages with the screw. The lamp module is now correctly oriented.

3. If beam settings have been disturbed, readjust the beam (see *"Beam adjustment"* on page 57).

4. Refit the lens, front glass with its seal and trim ring, and cross-tighten the trim ring screws gradually to 3 Nm/2.2 ft-lbs (see *"Refitting the lens and front glass"* on page 50).

Lamp replacement

The Inground 200 is supplied with the following discharge lamp.

Lamp	Efficiency	Color Temp.	Average Life
Philips CDM-SA/T 150W/942	88 Lm/W	4200 K	6000 hours

Table 1: Lamp specifications

The Inground 200 may be used with the following lamp types:

• Philips CDM-SA/T 150W/942
• Philips CDM-T 150W/830
• Osram HCI-T 150W/WDL
• Osram HCI-T 150W/NDL

If in any doubt about suitable lamp types, consult your Martin Architectural dealer.

Warning! ***Installing any other lamp type may damage the fixture.***

Replacing the lamp

You will need 2.5mm and 4mm Allen keys for this task.

Warning! ***Allow the fixture to cool for at least 15 minutes before removing the front glass.***

1. Isolate the fixture from power and allow it to cool.
2. Remove front glass, lens and lamp module (see *"Removing the front glass and lens"* on page 49 and *"Removing the lamp module"* on page 51).

3. Turn the lamp module upside down and loosen – but do not remove – the three 2.5mm Allen screws on the lamp baseplate pillar bolts.
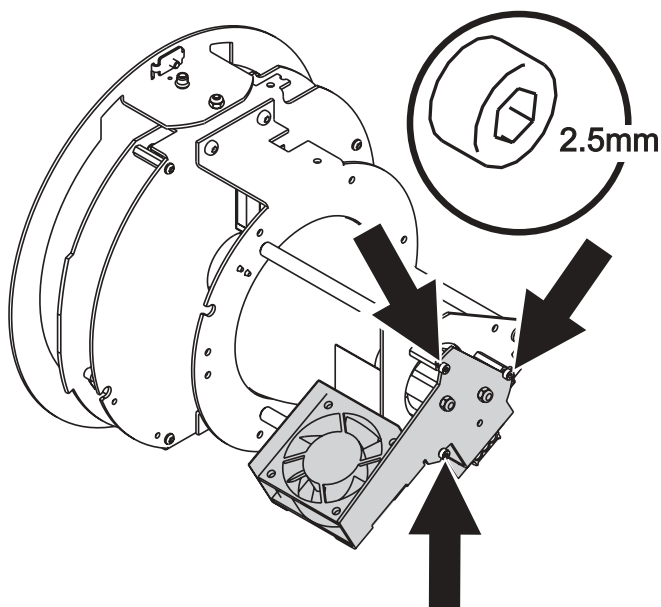
4. Turn the lamp baseplate anti-clockwise a few degrees to release it from the three Allen screws, then gently lift the baseplate assembly off the lamp module.
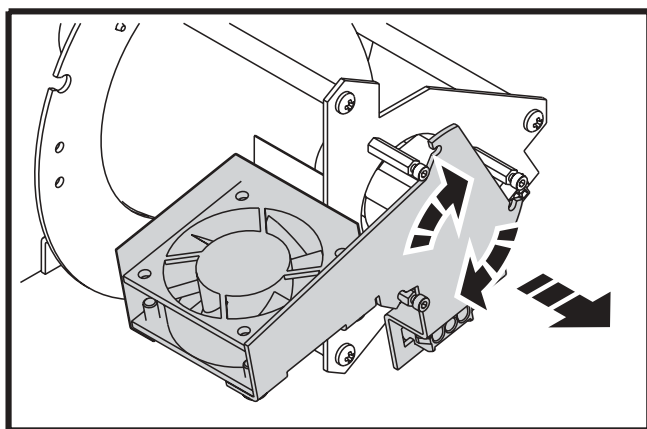
5. Remove the old lamp from the socket. Holding the new lamp by its ceramic base - *do not touch the glass bulb* - insert it firmly and squarely into the lamp socket. Clean the glass bulb with an alcohol wipe or a clean, lint-free cloth wetted with 99.9% isopropyl alcohol.
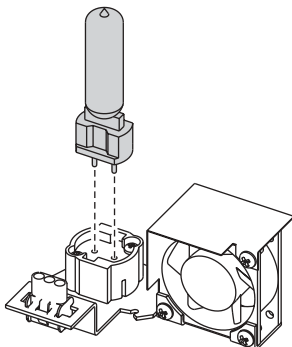
Reassembling after lamp replacement

1. Refit the lamp baseplate on the three pillar bolts, twisting clockwise to locate it, and retighten the three Allen screws to secure it.

2. Refit the lamp module, lens and front glass (see *"Refitting the lamp module"* on page 51 and *"Refitting the lens and front glass"* on page 50).

Accessing the PCB/power module

If you need to perform a boot sector upload, you will need access to the printed circuit board in the PCB/power compartment.

You will need 4mm and 5mm Allen keys for this task.

Removing the PCB/power module

1. Isolate the Inground 200 from AC power and allow to cool for at least 15 minutes.

2. Remove the front glass, lens and lamp module (see *"Removing the front glass and lens"* on page 49 *and "Removing the lamp module"* on page 51).

3. The PCB/power compartment is the larger of the two compartments in the bottom of the fixture. Note the positions of the connectors and disconnect the connections to this compartment.

4. Remove the five 5mm Allen screws from the compartment cover plate.

5mm
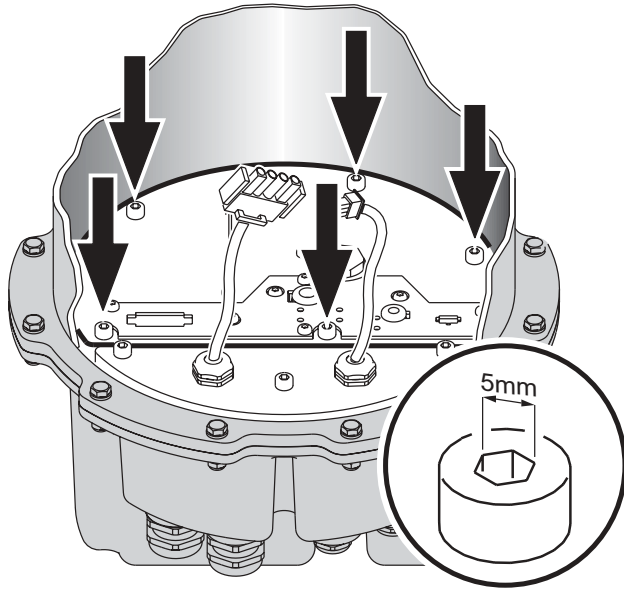
5. Holding the cover plate by its wire service handle, lift it carefully upwards, avoiding damage to the seal. The two PCBs and the power components are mounted on the cover plate itself, forming the PCB/power module. Lift this entire module carefully out of the fixture.

Refitting the PCB/power module

1. The PCB/power compartment and cable connection compartment share one seal. Check this seal for damage. If it is damaged or brittle, it must be replaced with a new seal (available from your Martin Architectural dealer: P/N: 20600450).

2. Ensure the seal and mating surfaces are perfectly clean and dry.

   Note: Do not apply silicone or any other type of sealant to the seal or mating surfaces. Doing so will invalidate the product warranty.

3. Lower the PCB/power module carefully into place, being careful not to damage the seal or trap wires.

4. Tighten the five cover plate Allen screws by hand until they are finger tight. Then use an Allen key to further tighten each screw by between three quarters of a turn and one full turn. Screws will now be tight enough to achieve a waterproof seal.

> *Note: Do not overtighten, or you may damage the seal and invalidate the product warranty.*

5. Refit the other components (see *"Refitting the lamp module"* on page 51 and *"Refitting the lens and front glass"* on page 50).

13. Set-up and adjustment

Powering on for the first time

After all connections and cables are installed, and after the site has been made safe, the Inground 200 can be powered on for testing and beam adjustment.

When fixtures are powered on, lamps strike after a random delay to avoid voltage drop in the power supply. When programmable Inground 200 models are powered on for the first time, they will run through a factory-set light show for test purposes. They will continue to run this test sequence until they are programmed.

6 Color model test program

The 6 Color fixture is pre-programmed with 7 scenes, to verify that all colors and the dimmer are working correctly.

1. White 100% intensity.
2. Color 1 100% intensity.
3. Color 2 100% intensity.
4. Color 3 100% intensity.
5. Color 4 100% intensity.
6. Color 5 100% intensity.
7. White 0% intensity (no light).

Full Spectrum CMY model test program

The Full Spectrum CMY fixture is pre-programmed with 5 scenes, to verify that all color-flags and the dimmer are working correctly.

1. White 100% intensity.
2. Cyan 100% intensity.
3. Magenta 100% intensity.

4. Yellow 100% intensity.

5. White 0% intensity (no light).

Beam adjustment

Correct adjustment of the beam of the Inground 200 is critical for correct illumination of the target. Adjustment is best carried out after dark.

Warning!   *Danger of burns, electric shock and lamp explosion!*

- *Beam adjustment must be carried out by authorized electrical personnel and in clean, dry conditions only.*

- *Heat-resistant safety gloves and safety glasses must be worn.*

- *Do not look directly into the lamp.*

- *Make sure that nothing falls into the fixture while the front glass and lens are removed.*

You will need 4mm and 2.5mm Allen keys for this task.

To adjust the beam:

1. Depending on whether the Inground 200 has been in operation or not, ensure that the fixture is at optimum temperature for adjustment by following one of these two alternatives:

   a) *If the fixture has been in operation* before you want to adjust the beam, do not switch it off. Instead, remove the front glass and lens (see *"Removing the front glass and lens"* on page 49) and wait 15 minutes for the lamp module to cool slightly.

   b) *If the fixture has not been in operation* before you want to adjust the beam, remove the front glass and lens (see *"Removing the front glass and lens"* on page 49), apply power and wait 15 minutes for the lamp to warm up to operating temperature.

2. Loosen the two 2.5mm beam adjustment ring Allen screws (A) and rotate the lamp module until it can be tilted towards the target.
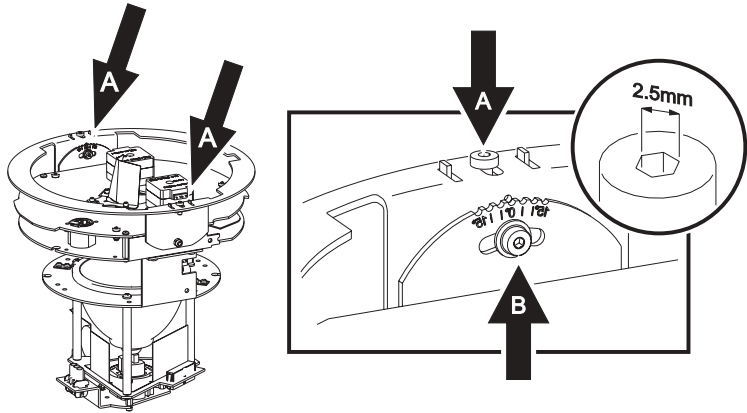
3. Make sure the beam adjustment ring screws (A) are pushed out towards the edges of the lamp module to engage the retaining clips, and retighten the screws to clamp the beam adjustment ring in place.

4. Loosen the tilt adjustment Allen screw (B) on the side of the beam adjustment ring. Adjust the tilt angle from 0 - 15° by pushing down gently on the side of the lamp module top plate closest to the target. Retighten the tilt adjustment screw (B). Replace the lens.

5. Check that the target is illuminated as intended. If not, repeat step 4. When the desired illumination is obtained, the tilt angle can be read from the guide next to the tilt adjustment screw and noted for future reference.

6. Replace the front glass with its seal and trim ring, gradually cross-tightening the trim ring screws to a maximum torque of 3 Nm/2.2 ft-lbs (see *"Refitting the lens and front glass"* on page 50).

Condensation and humidity

The Inground 200 is fitted with a self-purging valve that eliminates humidity problems. Any initial condensation after installation will gradually disappear in normal use.

14. Firmware updates

The latest Inground 200 firmware is available free of charge from the Support area of the Martin Architectural web site at http://www.martin-architectural.com. It can be installed using an MP-2, or via a PC serial data link using a hardware interface supported by the Software Uploader software (also available free of charge from the Martin website). The following devices are currently supported (in Version 5.5):

• DABS 1 (presently available with the MUM software package)
• ShowDesigner PCI DMX Interface Card (2048 channel version)
• LightJockey PCI DMX Interface Card (512 and 2048 channel versions)
• LightJockey PCMCIA DMX Interface
• LightJockey 4064 ISA DMX Interface Card (DJ and Club versions)

Note: Intermediate control systems such as the Martin Lighting Director (MLD) and the Martin Matrix must be bypassed when updating fixture software via the DMX link. These systems do not relay the update code correctly because it is not a DMX-compliant signal.

Normal update

To update fixture software, connect an upload device to the fixture just like a DMX controller and perform a DMX mode upload as described in the uploader's documentation. There is no need to isolate the Inground 200s from other types of fixtures on the data link.

When the upload is completed (and when booting up) the Inground 200 performs a check-sum test of the memory and then resets.

In the unlikely event that a software upload is interrupted, the fixture must be powered off for at least 10 seconds to force a check-sum test. You can then repeat the DMX-mode upload. If an error occurs and the fixtures do not reset, data was interrupted or corrupted during transmission. Perform a boot sector upload as described below.

Boot sector upload

If the normal upload procedure does not work, or if the software update notes call for a boot sector update, move the boot sector jumper at PL1 to the "Uplo" position before uploading software.

Performing a boot sector update

1. Switch off the Inground 200, allow to cool for at least 15 minutes, then isolate the fixture from AC power.

2. Remove the front glass, lens and lamp module (see *"Removing the front glass and lens"* on page 49 and *"Removing the lamp module"* on page 51).

Boot mode upload jumper
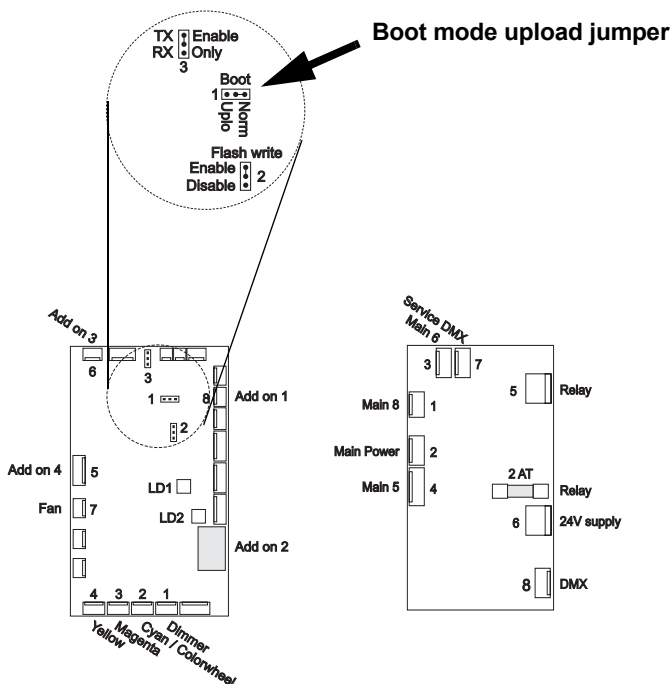
3. Open the power compartment and lift out the PCB/power module (see *"Removing the PCB/power module"* on page 54). Turn the module upside down, so that it rests on its cover plate. Find the jumper at position JP1. Move the jumper from the Normal (pins 1 and 2) to the Upload position (pins 2 and 3).

4. Refit the PCB/power module and lamp module (see *"Refitting the PCB/power module"* on page 55 and *"Refitting the lamp module"* on page 51) and reapply power.

5. Perform a boot mode upload as described in the uploader manual.

6. When the upload is complete, isolate the fixture from power and move the jumper at JP1 back to the "Norm" position (pins 1 and 2).

7. Refit the PCB/power module, lamp module, lens and front glass.

8. Reapply power and test the fixture to check that it functions normally. If the fixture still behaves abnormally, contact your Martin Architectural dealer for advice.

15. Printed circuit board layout

Close-up: jumper positions

TX ▮ Enable
RX ▮ Only
3

Boot
1 ▮•• Norm
Uplo

Flash write
Enable ▮ 2
Disable ▮

Add on 3

6

3
1 ▮•• 8

2

Add on 1

Add on 4   5

Fan   7

LD1 ▢
LD2 ▢

Add on 2

4 3 2 1

Yellow Magenta Cyan / Colorwheel Dimmer

PCB 1

Service DMX
Main 6

3   7

5   Relay

Main 8   1

Main Power   2

2 AT   Relay

Main 5   4

6   24V supply

8   DMX

PCB 2
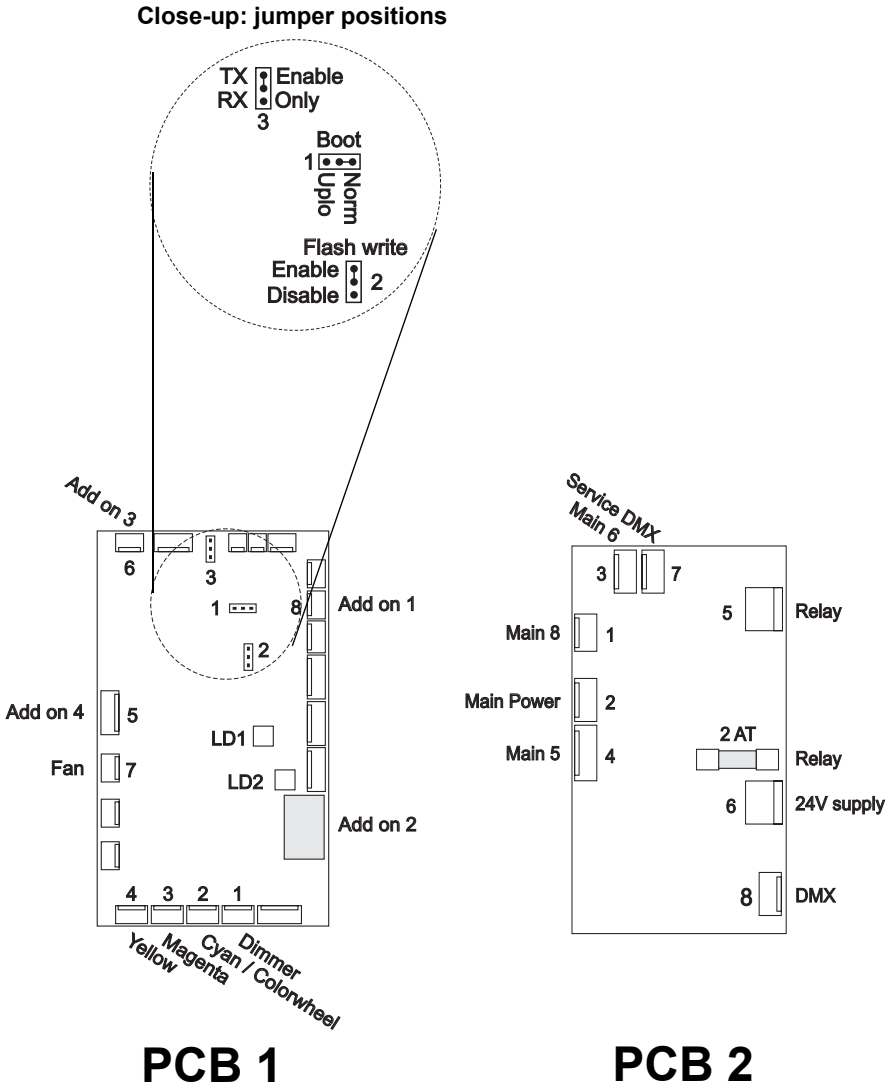
16. Troubleshooting

Problem	Probable cause(s)	Remedy
No response from fixture when power is applied.	No power to fixture.	Check power cables.
	Mains fuse blown.	Replace fuse.
Fixture resets but does not respond correctly to controller (DMX mode operation).	Controller not connected.	Connect controller.
	Incorrect addressing of the fixtures.	Check address setting on fixture and controller.
	Bad data link connection.	Inspect connections and test cables. Repair or replace as necessary.
	Conflict between tracking and vector control.	Eliminate scene cross-fade on controller or set channel 4 (6 Color models) or 6 (Full Spectrum CMY models) to 0%.
	Data link not terminated.	Insert 120 Ohm resistor across DMX terminals of last fixture.
	Defective fixture or 2 devices transmitting on link.	Check that only one fixture is set to operate as master. Bypass fixtures one at a time until normal operation is regained.
Fixture does not reset correctly.	Electronic or mechanical failure.	Contact service technician.
No light, lamp cuts out intermittently, or burns out too quickly.	Lamp blown.	Disconnect fixture and replace lamp.
	Fixture or lamp is too hot.	Allow fixture to cool. If problem persists, contact service technician.

SECTION 6. REFERENCE

17. MP-2 control menu structure

The control options in the table below can be accessed after:

- connecting and powering on the MP-2
- selecting **Read Memory Card**
- scrolling to and selecting **NEG V.** followed by the software version number
- selecting **Fixture Menu** and selecting either **All addresses** or **Single Address** (in single address mode you must indicate the DMX address of the fixture you want to upload to.

Level 1	Level 2	Level 3	Level 4	Level 5	Effect (default settings bold)
Fixture address	1-512				Select DMX address (start channel).
Stand-alone	Enable SA	Off			Disable stand-alone operation.
		On			Enable stand-alone operation (default setting).
	SA Execution	**Single fixture**			Enable independent operation (default setting).
		Master			Enable master operation.
		Synchronized			Enable slave operation.
	Light level				Not used in Inground 200
	Timer	Enable	**None**		Disable timer operation (default setting).
			Timer 1		Use timer 1 to trigger start/stop.
			Timer 2		Use timer 2 to trigger start/stop.
			Both Timers		Use timers 1 and 2 to trigger start/stop.
		Timer 1	Start	Hour	Set timer 1 start hour.
				Minute	Set timer 1 start minute.
			Stop	Hour	Set timer 1 stop hour.
				Minute	Set timer 1 stop minute.
		Timer 2	Start	Hour	Set timer 2 start hour.
				Minute	Set timer 2 start minute.
			Stop	Hour	Set timer 2 stop hour.
				Minute	Set timer 2 stop minute.

Level 1	Level 2	Level 3	Level 4	Level 5	Effect (default settings bold)
Stand-alone (continued)	Program	Intensity	0-255		Set dimmer level.
		Cyan	0-255		Set cyan level (Full Spectrum CMY models only).
		Magenta	0-255		Set magenta level (Full Spectrum CMY models only).
		Yellow	0-255		Set yellow level (Full Spectrum CMY models only).
		Color wheel	White		Set to white (6 Color models only).
			Color 1		Set to color 1 (6 Color models only).
			Color 2		Set to color 2 (6 Color models only).
			Color 3		Set to color 3. (6 Color models only)
			Color 4		Set to color 4 (6 Color models only).
			Color 5		Set to color 5 (6 Color models only).
			Color 6		Set to color 6 (6 Color models only).
		Fade time	Pick table	Snap	Set scene fade time to zero, so that scene changes are immediate.
				1s - 2m 0s	Set scene fade time from 1 second to 2 minutes.
			Custom	Hours	Set scene fade time from 0 to 17 hours.
				Minutes	Set scene fade time from 0 to 59 minutes.
				Seconds	Set scene fade time from 0 to 59 seconds.
		Wait (trig) time	Pick table	0s - 12h	Set scene wait time from 0 seconds to 12 hours.
			Custom	Hours	Set scene wait time from 0 to 17 hours.
				Minutes	Set scene wait time from 0 to 59 minutes.
				Seconds	Set scene wait time from 0 to 59 seconds.
		Add scene	Go		Save new scene to end of sequence.
		Next scene	Go		Call the next scene.
		Previous scene	Go		Call the previous scene.
		Store scene	Go		Save changes to current scene.
		Insert scene	Go		Save new scene before current scene.
		Delete scene	Go		Delete the current scene.
		Clr all scenes	No		Cancel command.
			Yes		Delete all scenes.
		Run program	Leave		Run the scenes in the program.

Level 1	Level 2	Level 3	Level 4	Level 5	Effect (default settings bold)
Adjust	Reset	On			Reset effects to home position.
	Lamp on	On			Turn on lamp.
	Lamp off	Off			Turn off lamp.
	Real time clock	Hour			Set the current hour in 24-hour time.
		Minute			Set the current minute.
	All effects	Open			Move all effects to open position.
		Closed			Move all effects to closed position.
	Intensity	Open			Move dimmer to open position.
		Closed			Move dimmer to closed position.
	Cyan	Open			Move cyan flag to open position (Full Spectrum CMY models only).
		Closed			Move cyan flag to full position (Full Spectrum CMY models only).
	Magenta	Open			Move magenta flag to open position (Full Spectrum CMY models only).
		Closed			Move magenta flag to full position (Full Spectrum CMY models only).
	Yellow	Open			Move magenta flag to open position (Full Spectrum CMY models only).
		Closed			Move magenta flag to full position (Full Spectrum CMY models only).
	Color wheel	White			Move white color to open position (6 Color models only).
		Color 1			Move color 1 to open position (6 Color models only).
		Color 2			Move color 2 to open position (6 Color models only).
		Color 3			Move color 3 to open position (6 Color models only).
		Color 4			Move color 4 to open position (6 Color models only).
		Color 5			Move color 5 to open position (6 Color models only).
		Color 6			Move color 6 to open position (6 Color models only).

Level 1	Level 2	Level 3	Level 4	Level 5	Effect (default settings bold)
Personality	DMX lamp off	Off			Disable lamp dousing via DMX.
		On			Enable lamp dousing via DMX (default setting).
	DMX reset	Off			Disable fixture resetting via DMX.
		On			Enable fixture resetting via DMX (default setting).
	Auto lamp on	Off			Strike lamp from controller.
		On			Strike lamp automatically within 90 seconds of power on (default setting).
	MC-X lamp off	Off			Do not allow MC-X to douse lamp.
		On			Allow MC-X to douse lamp (default setting).
	Factory default	Factory set 1			Switch all personality settings to factory default settings 1.
		Factory set 2			Switch all personality settings to factory default settings 2.
		Factory set 3			Switch all personality settings to factory default settings 3.
		Factory set 4			Switch all personality settings to factory default settings 14.
	Reset counters	Off			Cancel resetting of all counters.
		On			Reset all counters.
Version	Leave				Not used in Inground 200.

18. DMX protocol: Inground 200 6 Color

DMX Channel	Value	Percent	Function
1			**Reset, Lamp On/Off**
	0 – 207	0 – 81	Reserved (no change)
	208 – 217	82 – 85	Reset fixture
	218 – 227	85 – 89	Reserved (no change)
	228 – 237	89 – 93	Lamp power on
	238 – 247	93 – 97	Reserved (no change)
	248 – 255	97 – 100	Lamp power off* **Note:** T 5 seconds
2			**Dimmer**
	0 – 255	0 – 100	Closed → open
3			**Color Wheel**
	0 – 22	0 – 9	Color 1
	23 – 45	9 – 18	Reserved (Color 1)
	46 – 68	18 – 27	Color 2
	69 – 92	27 – 36	Reserved (Color 2)
	93 – 115	36 – 45	Color 3
	116 – 138	45 – 54	Reserved (Color 3)
	139 – 161	55 – 63	Color 4
	162 – 185	64 – 73	Reserved (Color 4)
	186 – 208	73 – 82	Color 5
	209 – 231	82 – 91	Reserved (Color 5)
	232 – 255	91 – 100	White
4			**Speed**
	0 – 2	0 – 1	Tracking
	3 – 245	1 – 96	Fast → slow
	246 – 255	96 – 100	Fast

19. DMX protocol: Inground 200 Full Spectrum CMY

DMX Channel	Value	Percent	Function
1			**Reset, Lamp On/Off**
	0 – 207	0 – 81	Reserved (no change)
	208 – 217	82 – 85	Reset fixture
	218 – 227	85 – 89	Reserved (no change)
	228 – 237	89 – 93	Lamp power on
	238 – 247	93 – 97	Reserved (no change)
	248 – 255	97 – 100	Lamp power off* **Note:** T 5 seconds
2			**Dimmer**
	0 – 255	0 – 100	Closed → open
3			**Cyan**
	0 – 255	0 – 100	White → Cyan
4			**Magenta**
	0 – 255	0 – 100	White → Magenta
5			**Yellow**
	0 – 255	0 – 100	White → Yellow
6			**Speed**
	0 – 2	0 – 1	Tracking
	3 – 245	1 – 96	Fast → slow
	246 – 255	96 – 100	Fast

20. Specifications: Inground 200 6 Color

Physical

Height 496mm (19.53in.)
Trim ring outer Ø .... 340mm (13.39 in.)
Trim ring thickness .... 7mm (0.28 in.)
Housing top flange outer Ø .... 310mm (12.2 in.)
Weight .... approx. 20kg (44lb)

Included items

User manual, Inground 200 6 Color and Full Spectrum CMY models........ P/N 35000153
Installation guide .... P/N 35000151
Lamp: Philips CDM-SA/T 150W 942 .... P/N 97010111
2 x AC power cable glands, IP68, stainless steel, M25x1.5, Ø 13-17mm (Ø 0.51-0.67 in.)
2 x control cable glands, IP68, stainless steel, M16x1.5, Ø 5-9mm (Ø 0.2-0.35 in.)
2 x spare trim ring screws (4mm Allen cap, countersunk)

Construction

Housing .... combination of extruded and high pressure die-cast aluminium
Finish .... powder coated epoxy/polyester with 2% Teflon (PTFE), Grey
Trim ring .... various options available
Fasteners .... M6 stainless steel Allen cap screws (6 off)
Front glass .... Ø 254mm (10 in.), 19 mm (3/4 in.) tempered optiwhite
Ingress protection factor .... IP 65/67
AC power entry .... 2 x threaded holes, M25 x 1.5, thread length 8mm (0.31 in.)
Control data cable entry ...... 2 x threaded holes, M16 x 1.5, thread length 8mm (0.31 in.)
Front glass weight resistance (load from pneumatic tire) 5000kg (11,023lb)
Inground 200 weight resistance
    (in installation sleeve with suitable groundwork) 5000kg (11,023lb)

Source

Lamp .... 150 W HIT
Base G12
Approved models .... Philips CDM SA/T 150W/942
Philips CDM-T 150W/830
Osram HCI-T 150W/WDL
Osram HCI-T 150W/NDL
Control .... Automatic and/or remote on/off

Optics

Model	One-tenth peak angle
Medium	32°
Wide	56°
Very wide	98°
Wallwash	104°

Photometrics

Inground 200 Medium

Efficiency	41%
Total Output	5777 lumens
Half peak angle	20°
One-tenth peak angle	32°
Illuminance	50556/distance2 [lux]
Half-peak diameter	0.35 x distance [m]
One-tenth-peak diameter	0.56 x distance [m]
Measurement conditions	230V, 50Hz, no color applied
Measurement source	Philips CDM-SA/T 150/940

Inground 200 Wide

Efficiency	41%
Total Output	5794 lumens
Half peak angle	32°
One-tenth peak angle	56°
Illuminance	17063/distance2 [lux]
Half-peak diameter	0.57 x distance [m]
One-tenth-peak diameter	1.06 x distance [m]
Measurement conditions	230V, 50Hz, no color applied
Measurement source	Philips CDM-SA/T 150/940

Inground 200 Very Wide

Efficiency	43%
Total Output	5993 lumens
Half peak angle	54°
One-tenth peak angle	98°
Illuminance	6291/distance2 [lux]
Half-peak diameter	1.02 x distance [m]
One-tenth-peak diameter	2.30 x distance [m]
Measurement conditions	230V, 50Hz, no color applied
Measurement source	Philips CDM-SA/T 150/940

Inground 200 Wallwash

Efficiency	39%
Total Output	5526 lumens
Half peak angle	54°

One-tenth peak angle ....104°
Illuminance .... 5059/distance2 [lux]
Half-peak diameter ....1.02 x distance [m]
One-tenth-peak diameter ....2.56 x distance [m]
Measurement conditions .... 230V, 50Hz, no color applied
Measurement source .... Philips CDM-SA/T 150/940

Control & Programming

Control options ....DMX-512, stand-alone, master/slave, Martin MC-X remote control
Receiver RS-485
Setting and addressing..MP-2, DAD, MUM
Firmware update ....Serial upload (MUF)
Stand-alone trigger options ....internal real-time clock with 2 timers
Calculated clock precision.. within 52 secs. +/- per month
Stand-alone memory ....20 scenes
DMX channels 4

Dynamic effects

Color wheel ....6 positions
Dimmer...0 - 100%
Standard color configuration.................................. red, orange, yellow, green, blue, white.
    Other color options available

Thermal

Cooling ....Convection (with internal fan)

Maximum heat output

208 V @ 50/60Hz .... 625 BTU/hour*
230V @ 60Hz .... 635 BTU/hour*
230 V @ 50/60Hz.. 648 BTU/hour*
250V @ 50/60Hz .... 652 BTU/hour*
* These measurements have a margin of error of +/- 10%

Maximum power consumption

208V @ 60Hz 1A, 183W*
230V @ 60Hz 0,9A, 186W*
230V @ 50Hz 1A, 190W*
250V @ 50Hz 0.9A, 191W*
* These measurements have a margin of error of +/- 10%

AC power supply

Power supply options... 230V/50Hz; 210V/60Hz

Compliance

IP 65/67

21. Specifications: Inground 200 Full Spectrum CMY

Physical

Height 496mm (19.53in.)
Trim ring outer Ø ....340mm (13.39 in.)
Trim ring thickness ....7mm (0.28 in.)
Housing top flange outer Ø ....310mm (12.2 in.)
Weight..approx. 20kg (44lb)

Included items

User manual, Inground 200 6 Color and Full Spectrum CMY models........P/N 35000153
Installation guide ....P/N 35000151
Lamp: Philips CDM-SA/T 150W 942 ....P/N 97010111
2 x AC power cable glands, IP68, stainless steel, M25x1.5, Ø 13-17mm (Ø 0.51-0.67 in.)
2 x control cable glands, IP68, stainless steel, M16x1.5, Ø 5-9mm (Ø 0.2-0.35 in.)
2 x spare trim ring screws (4mm Allen cap, countersunk)

Construction

Housing...........................combination of extruded and high pressure die-cast aluminium
Finish ....powder coated epoxy/polyester with 2% Teflon (PTFE), Grey
Trim ring...various options available
Fasteners.. M6 stainless steel Allen cap screws (6 off)
Front glass .... Ø 254mm (10 in.), 19 mm (3/4 in.) tempered optiwhite
Ingress protection factor .... IP 65/67
AC power entry .... 2 x threaded holes, M25 x 1.5, thread length 8mm (0.31 in.)
Control data cable entry...... 2 x threaded holes, M16 x 1.5, thread length 8mm (0.31 in.)
Front glass weight resistance (load from pneumatic tire) 5000kg (11,023lb)
Inground 200 weight resistance
  (in installation sleeve with suitable groundwork) 5000kg (11,023lb)

Source

Lamp...150 W HIT
Base... G12
Approved models...Philips CDM SA/T 150W/942
                                                                    Philips CDM-T 150W/830
                                                                    Osram HCI-T 150W/WDL
                                                                    Osram HCI-T 150W/NDL
Control ....Automatic and/or remote on/off

Optics

Model	One-tenth peak angle
Medium	32°
Wide	56°
Very wide	98°
Wallwash	104°

Photometrics

Inground 200 Medium

Efficiency	41%
Total Output	5777 lumens
Half peak angle	20°
One-tenth peak angle	32°
Illuminance	50556/distance2 [lux]
Half-peak diameter	0.35 x distance [m]
One-tenth-peak diameter	0.56 x distance [m]
Measurement conditions	230V, 50Hz, no color applied
Measurement source	Philips CDM-SA/T 150/940

Inground 200 Wide

Efficiency	41%
Total Output	5794 lumens
Half peak angle	32°
One-tenth peak angle	56°
Illuminance	17063/distance2 [lux]
Half-peak diameter	0.57 x distance [m]
One-tenth-peak diameter	1.06 x distance [m]
Measurement conditions	230V, 50Hz, no color applied
Measurement source	Philips CDM-SA/T 150/940

Inground 200 Very Wide

Efficiency	43%
Total Output	5993 lumens
Half peak angle	54°
One-tenth peak angle	98°
Illuminance	6291/distance2 [lux]
Half-peak diameter	1.02 x distance [m]
One-tenth-peak diameter	2.30 x distance [m]
Measurement conditions	230V, 50Hz, no color applied
Measurement source	Philips CDM-SA/T 150/940

Inground 200 Wallwash

Efficiency	39%
Total Output	5526 lumens
Half peak angle	54°

One-tenth peak angle .... 104°
Illuminance ....5059/distance2 [lux]
Half-peak diameter ....1.02 x distance [m]
One-tenth-peak diameter ....2.56 x distance [m]
Measurement conditions .... 230V, 50Hz, no color applied
Measurement source ....Philips CDM-SA/T 150/940

Control & Programming

Control options.......... DMX-512, stand-alone, master/slave, Martin MC-X remote control
Receiver...RS-485
Setting and addressing... MP-2, DAD, MUM
Firmware update..Serial upload (MUF)
Stand-alone trigger options.....................................internal real-time clock with 2 timers
Calculated clock precision .... < 52 secs. +/- per month
Stand-alone memory .... 20 scenes
DMX channels 6

Installation

Minimum distance to combustible materials: ....1 m (39 in)
Minimum distance to illuminated surfaces: ....0.5 m (20 in)

Thermal

Cooling.. Convection (with internal fan)

Maximum heat output

208 V @ 50/60Hz ....625 BTU/hour*
230V @ 60Hz ....635 BTU/hour*
230 V @ 50/60Hz ....648 BTU/hour*
250V @ 50/60Hz ....652 BTU/hour*
* These measurements have a margin of error of +/- 10%

Maximum power consumption

208V @ 60Hz 1A, 183W
230V @ 60Hz 0,9A, 186W
230V @ 50Hz 1A, 190W
250V @ 50Hz 0.9A, 191W

AC power supply

Power supply options.. 230V/50Hz; 210V/60Hz

Dynamic effects

Cyan filter .... 0 - 100%
Magenta filter .... 0 - 100%
Yellow filter .... 0 - 100%
Dimmer .... 0 - 100%

Compliance

IP 65/67

22.Ordering information

Accessories

Installation sleeve P/N 91611194
Trim ring options see http://www.martin-architectural.com
Trim ring screw (4mm Allen cap, countersunk)P/N 08111314
Front glass P/N 41700007
Anti-skid front glassP/N 91611198
Front glass seal P/N 20600441
Connections/power compartment seal P/N 20600450
MUM (Multi Utility Manager) incl. DABS1 interface & cables P/N 90758090
XLR (male 3-pin) to RJ45 cable P/N 11840087
DAD (DMX Address Device) P/N 90758430
MP-2 Uploader P/N 90758420

Inground 200 (230V/50Hz models)

Inground 200 Single Color Medium 230V/50HzP/N 90508440
Inground 200 Single Color Wide 230V/50HzP/N 90508420
Inground 200 Single Color Very Wide 230V/50HzP/N 90508400
Inground 200 Single Color Wallwash 230V/50HzP/N 90508410

Inground 200 6 Color Medium 230V/50HzP/N 90508240
Inground 200 6 Color Wide 230V/50HzP/N 90508220
Inground 200 6 Color Very Wide 230V/50HzP/N 90508200
Inground 200 6 Color Wallwash 230V/50HzP/N 90508210

Inground 200 Full Spectrum CMY Medium 230V/50HzP/N 90508040
Inground 200 Full Spectrum CMY Wide 230V/50HzP/N 90508020
Inground 200 Full Spectrum CMY Very Wide 230V/50HzP/N 90508000
Inground 200 Full Spectrum CMY Wallwash 230V/50HzP/N 90508010

Inground 200 (210V/60Hz models)

Inground 200 Single Color Medium 210V/60Hz P/N 90508444
Inground 200 Single Color Wide 210V/60Hz P/N 90508424
Inground 200 Single Color Very Wide 210V/60Hz P/N 90508404
Inground 200 Single Color Wallwash 210V/60Hz P/N 90508414

Inground 200 6 Color Medium 210V/60Hz P/N 90508244
Inground 200 6 Color Wide 210V/60Hz P/N 90508224
Inground 200 6 Color Very Wide 210V/60Hz P/N 90508204
Inground 200 6 Color Wallwash 210V/60Hz P/N 90508214

Inground 200 Full Spectrum CMY Medium 210V/60Hz P/N 90508044
Inground 200 Full Spectrum CMY Wide 210V/60Hz P/N 90508024
Inground 200 Full Spectrum CMY Very Wide 210V/60Hz P/N 90508004
Inground 200 Full Spectrum CMY Wallwash 210V/60Hz P/N 90508014